

Document of
The World Bank

FOR OFFICIAL USE ONLY

Report No. 8459

PROJECT COMPLETION REPORT

KOREA

**SECOND AGRICULTURAL PRODUCTS PROCESSING PROJECT
(LOAN 1850 -K0)**

MARCH 15, 1990

**Agriculture Operations Division
Country Department II
Asia Regional Office**

This document has a restricted distribution and may be used by recipients only in the performance of their official duties. Its contents may not otherwise be disclosed without World Bank authorization.

EXCHANGE RATES

Name of Currency (Abbreviation)

Won (W)

Year:

Appraisal Year Average

Exchange Rate: US\$1 = 484

Intervening Years Average

US\$1 = 720

Completion Year Average

US\$1 = 870

FISCAL YEAR

January 1 - December 31

ABBREVIATIONS

AFDC	- Agriculture and Fishery Development Corporation
AMTI	- Agricultural Marketing Training Institute
APPSP	- Agricultural Products Price Stabilization Program
EPB	- Public Enterprise Management Council
ERR	- economic rate of return
FRI	- Food Research Institute
FRR	- financial rate of return
KDB	- Korea Development Bank
KDFC	- Korea Development Finance Corporation
KLB	- Korea Long-Term Credit Bank
MAF	- Ministry of Agriculture and Fisheries
NACF	- National Agricultural Cooperative Federation
NFFC	- Natinal Federal of Fisheries Cooperatives
OED	- Operations Evaluation Department
PCR	- Project Completion Report
PD	- Project Department of AFDC
SMIB	- Small and Medium Industry Bank

Office of Director-General
Operations Evaluation

March 15, 1990

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Completion Report on Korea
Second Agricultural Products Processing Project (Loan 1851-KO)

Attached, for information, is a copy of a report entitled "Project Completion Report on Korea: Second Agricultural Products Processing Project (Loan 1851-KO)" prepared by the Borrower with an Overview prepared by the Asia Regional Office. No audit of this project has been made by the Operations Evaluation Department at this time.

A handwritten signature in black ink, appearing to be 'R. P. H.', is located to the right of the main text block.

Attachment

PROJECT COMPLETION REPORTKOREASECOND AGRICULTURAL PRODUCTS PROCESSING PROJECT (LOAN 1851-K0)Table of Contents

	<u>Page No.</u>
Preface	i
Basic Data Sheet	ii
Evaluation Summary	iv
Overview	ix
I. Introduction.....	1
II. Project Formulation.....	1
Preparation and Appraisal	1
Project Description	2
III. Implementation.....	2
Overview	2
Organization and Management	2
Project Lending	3
Subloan Terms and Conditions	7
Subloan Recovery and Impact on AFDC's Financial Situation ...	7
Technical Assistance and Training	8
Cost and Financing	9
Procurement	11
Disbursement and Allocation of Loan Proceeds	11
IV. Financial and Economic Evaluation.....	12
Financial Rate of Return	13
Operational Status of the Subborrowers	14
V. Institutional Performance and Development	16
VI. Bank Performance.....	17
VII. Conclusions.....	17
Annex 1: Income Statements	19
Annex 2: List of Subborrowers	21
Annex 3: Loan Distribution by Region and Processing Type	25
Annex 4: Financial Rates of Return	26
Attachment 1: Comments from the Agricultural and Fishery	35
Marketing Corporation	

MAP: IBRD 12351R4

PROJECT COMPLETION REPORT

KOREA

SECOND AGRICULTURAL PRODUCTS PROCESSING PROJECT
(Loan 1851-KO)

PREFACE

This is the Project Completion Report (PCR) for the Second Agricultural Products Processing Project in Korea, for which Loan 1851-KO was approved on June 27, 1980 in the amount of US\$50.0 million. The loan was closed about nine months behind schedule on June 20, 1985 with a cancellation of US\$2.7 million on March 1, 1985.

The PCR was prepared by the Agriculture and Fisheries Development Corporation (AFDC) and is supplemented with an Overview prepared by the Asia Regional Office. The Report is based upon a review of (i) Staff Appraisal Report; (ii) The President's Report; (iii) Loan and Guarantee Agreements; (iv) Project data compiled by AFDC; (v) supervision reports; and (vi) various project-related files. Field visits to the project area and to various sample industries were last made in December 1984.

This PCR was read by the Operations Evaluation Department (OED). The draft PCR was sent to the Borrower for comments and they are attached to the Report (Attachment 1).

PROJECT COMPLETION REPORT

KOREA - SECOND AGRICULTURAL PRODUCTS PROCESSING PROJECT (LOAN 1851-KO)

BASIC DATA SHEET

KEY PROJECT DATA

Item	Appraisal Expectation	Actual or Current Estimate
Total Project Cost (US\$ million)	83.8	87.4
Underrun or Overrun (%)		4.3
Loan Amount (US\$ million)	50.0	47.3
Disbursed	—	47.3
Cancelled	—	2.7
Repaid to 03/31/87	—	28.5
Outstanding to 03/31/87	—	18.8
Date Physical Components Completed	12/83	1984
Proportion Completed by Above Date (%)	100	100
Proportion of Time Underrun or Overrun (%)		+25
Economic Rate of Return (%)	21	11
Financial Performance		Weak
Institutional Performance		Weak

STAFF INPUT

(Staffweeks)

	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>	<u>FY85</u>	<u>FY87</u>	<u>TOTAL</u>
Preappraisal	2.2	13.0							15.3
Appraisal		73.7							73.7
Negotiation		6.2							6.2
Supervision		1.5	12.3	17.0	18.1	8.9	7.9	2.3	68.0
Other		.1			.3		.4		.8
Total*	2.2	94.4	12.3	17.0	18.4	8.9	8.3	2.3	163.8

*Excludes time spent by Young Professionals.

CUMULATIVE DISBURSEMENTS

	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>	<u>FY85</u>
Appraisal Estimate (US\$ M)	15.0	32.0	46.0	50.0	
Actual (US\$ M)	6.9	19.3	33.8	43.9	47.3
Actual as % of Estimate	45.96	60.3	73.4	87.9	94.6

Date of Final Loan Disbursements: June 19, 1985

MISSION DATA

	Month Year	No. of Weeks	No. of Persons	Staff Weeks	Date of Report
Identification	11/76	4	3	12	1/06/76
Preparation	6/79	2	2	4	-
Appraisal	8/79	4	5	20	4/18/80
Total				36	
Supervision I	10/80	1.5	1	1.5	11/08/80
Supervision II	5/81	1.5	2	3	6/30/81
Supervision III	2/82	2	1	2	3/12/82
Supervision IV	12/82	2	2	4	1/20/83
Supervision V	6/83	1.5	2	3	7/29/83
Supervision VI	2/84	1.5	2	3	3/27/84
Supervision VII	12/84	2	4	8	1/31/85
Total				24.5	

OTHER PROJECT DATA

Item	Original Plan	Revisions	Actual or Est. Actual
First Mention in Files of Timetable			12/14/76
Negotiations	04/07/80		04/07/80
Board Approval	05/22/80		05/22/80
Loan/Credit Agreement Date	06/27/80		06/27/80
Effective Date	09/03/80		09/03/80
Closing Date	09/30/84	02/28/85	06/20/85
Borrower	Agriculture and Fishery Development Corp.		
Executing Agency	Agriculture and Fishery Development Corp.		
Fiscal Year of Borrower	January 1 - December 31		
Follow-on Project Name	None		

PROJECT COMPLETION REPORT

KOREA

SECOND AGRICULTURAL PRODUCTS PROCESSING PROJECT (Loan 1851-KO)

EVALUATION SUMMARY

Introduction

i. The Second Agricultural Products Processing Project was financed under Credit 1851-KO, approved in 1980. The project aimed at upgrading the agro-fishery processing industry by providing funds through the Agriculture and Fisheries Development Corporation (AFDC). Total project costs were estimated W 48,600 million (US\$83.8 million), against which an IBRD Loan of US\$50.0 million was negotiated. It was expected that the project would be completed by September 30, 1983 and the Loan would close on September 30, 1984.

ii. Implementation began in 1980 after a short delay. Because of much higher investment costs and much higher burdens to small and medium sized borrowers than estimated at appraisal, the project's financial and economic success was considerably lower than anticipated. After one extension, the loan was closed on June 20, 1985, with a balance of US\$2.7 million that was cancelled.

Objectives and Rationale

iii. The project objectives were to: support a high priority Government effort to increase income and employment in rural areas by augmenting the value added; expand production and exports from the agriculture sector; and increase the supply and quality of processed foods to consumers by supporting agri and fisheries processing subloans which would:

- (a) reduce wastage of farm produce from spoilage and loss, especially of perishables, through the provision of additional processing capacity, including freezing and cold storage, and improved efficiency of processing;
- (b) increase supplies, better quality and larger variety of processed foods throughout the year which would meet domestic and export demand, assist in dampening the significant supply and price fluctuations of farm produce, especially fruits, vegetables and other perishables during the off season periods. The supply of processed products at generally lower costs would be an additional benefit to consumers;
- (c) raise productivity of labor involved in processing by about 16-32% by upgrading the level of technology;

- (d) create 5,000 jobs in the processing industry and raise farmers and processed workers incomes; and
- (e) increase value-added, total employment, export earnings and import substitution for the economy.

iv. In addition, the project was to strengthen the institutional capacity of AFDC, especially by providing financial and technical assistance for development of agro-processing for small and medium processors.

Implementation Experience and Results

v. The Project was approved by the Board on May 5, 1980. The legal documents, comprising a Loan Agreement with the Agriculture and Fisheries Development Corporation (AFDC) and a Guarantee Agreement with the Republic of Korea, were signed on June 27, 1980, and became effective on September 20, 1980. The Appraisal Report (2849a-KO) was completed on April 18, 1980. The President's Report (P-2799-KO) was completed on April 20, 1980. The Project Completion Report date was September 30, 1983 and the Closing Date was September 30, 1984. The Loan Account was closed on June 20, 1985, nine months after the original date. The funds were to be relent to agro-processing enterprises, with repayment periods to be determined by their individual cash flow estimates, and interest at not less than 12% p.a. Sub-borrowers were to bear the foreign exchange risk. AFDC was to expend about US\$0.5 million for technical assistance and training to strengthen its Project Department.

vi. The Agricultural Fishery Development Corporation (AFDC) began to lend under the Project in July 1980 and by the closing date had 128 subloans been processed. Out of the Loan of US\$50.0 million total disbursements of US\$47.3 million were completed in June 1985 and US\$2.7 million was cancelled. A total of W 44,375 million was disbursed or 91.3% of the amount committed. Loans to cooling and cold store facilities accounted for a relatively large part of the credit. Of the 128 subloans, 30 subloans were for freezing and cold/chilled stores, amounting to W 14,366 million, or 32.4%, which in the Appraisal Report it was anticipated to be only 28%. This critical change of investment strategy and the low utilization (less than 40% of capacity) of these cold stores along with over a 66% increase in construction costs, caused individual investors much hardship, resulting in some default and sales of those facilities. As a result, the return on investment, and the financial and economic rates of return were much lower than anticipated during the Appraisal of the Project. Nevertheless, all key covenants were completed, mostly on schedule, and without any major effect on the project.

vii. The appraisal process at AFDC ran into a number of snags, including carrying out the process by inexperienced technicians and under-experienced agri-business and marketing professionals. There was some impropriety on the part of a few individuals at AFDC. Part of the problem was the parastatal's inability to pay for competence by contracting for experience either for full time staff or for short term consultants. The financial irregularities have now been resolved.

viii. The project did not have a system to measure whether the objectives were attained. Nevertheless most of the subborrowers are small and medium entrepreneurs. About 13 subloans were made to large companies to a total amount of about W 15,144 million, or 34% of the total amount committed. A large number of different types of agro-businesses have been financed. The main categories are: rice milling (17 subprojects), drying of fish and vegetables (16 subprojects), chilled storage for fruits and vegetables (15 subprojects), cold stores for fish and meat (15 subprojects), fish meat processing (14 subprojects) and preservation of vegetables (12 subprojects). AFDC gained some valuable but costly experience in appraising agri-fishery processing loans. AFDC continues to have only marginal in-house competence to take on sophisticated technical and financial analysis. It is not clear that the project upgraded the level of technology. In the Republic of Korea efficient and modern cold storage facilities provide iced fish and frozen fish to all regions by refrigerated vans. While the countries agri-fishery industry has developed, there is not any indication from the draft PCR what upgraded technology was adopted. The Project however, increased the cold store facilities to about 160,000 metric tons. While this was thought to be too high in 1983, this has had an effect on holding back 1984/85 prices on onions and satisfied consumer demand.

Sustainability

ix. Of the 128 subloans, 77 companies are in operation; 27 are under foreclosure due to long overdue payments, or bankruptcy; 21 companies were under financial reorganization; and two subloans have been cancelled. Out of the 27 subprojects under foreclosures, 12 are related to chilled stores and cold storages, and of the other 15 subprojects dealing with food processing in general, 7 are related to fish processing. The average subloan under foreclosure is W 348.0 million (US\$0.5 million), which is close to the average of the total loan portfolio which is W 365.0 million (US\$0.52).

Findings and Lessons

x. While there were broad benefits of providing linkages from food production to consumer, short term standard measures of success were only marginal. It is estimated that about 3,500 new jobs were created from the project's loans and will obtain direct benefits through the incremental increase in agri-fishery business financed in this project. At appraisal the financial rate of return (FRR) for the project was based on model agro-processing units and was estimated at 24%. The re-estimated FRR after financing using the same model approach was about 14%. The estimated overall economic rate of return (ERR) at appraisal was about 21%. The re-estimated ERR after financing calculated in the same manner as the SAR is 11%, largely due to exchange rate difficulties, high investment and operating cost, reduction in expected benefits, and overt expectations for exports of agri-fishery products without ample market research. The appraisal report clearly discussed the risks and that with an increase of costs by 20% "investment and operating costs would reduce the overall FRR from 24% to 19% and the ERR from 21% to 15%." In fact, investment costs

increased by 40-66%, particularly in the cold stores which was about 32.4% of the portfolio under the project. With 66% increase in costs, an estimated 10-12% FRR for the three types of cold stores is a more realistic calculation, if the full capacity was utilized. However, capacity utilization was far less, about 40%, which would further drag-down the FRR calculation to 8-9%, instead of the optimistic 21% estimated in the appraisal report and 12-15% in the PCR for cold stores.

xi. While the yearly export earnings were stated at US\$35.0 million, subloans to the industries that exported these items were a very small percentage of the portfolio (an optimistic estimation of exports would encompass about 7.8% of the portfolio). Nevertheless, exports do not appear to be calculated for either the financial or economic rates of return in the appraisal; and as a result and according to our own standards, cannot be used in the calculation or a re-estimated FRR or ERR.

xii. Using FRR and ERR in any agri-business in the short period is not always the best gauge. In the early years with a very slow start-up whereby the cashflow is negative or only just positive, the FRR or ERR will always be negative; agribusiness are subject to climate and other natural factors and thus are slower to mature or become profitable. In a longer period, eight to ten years, FRR and ERR are much more reliable.

xiii. The passing on of the foreign exchange risk to individual borrowers has likely caused undue hardship to most small and medium size borrowers. This is particularly true for equipment that was imported, e.g. the cold stores, and the food processing lines, where actual costs were from 40-66% higher than anticipated at appraisal. In addition prior to appraisal the Korean exchange rate was W 484; when the initial loans were made the exchange rate was about W 580 to the US Dollar, and within a short period before repayment, the exchange rate nearly doubled to W 870 to the US dollar. Borrowers, thus had to pay nearly double the Won if, as it certainly was in the case of all equipment and some building materials, it was imported. In addition, whilst the nominal interest rate for the loan was 8.25%, cross-currency risk raised this to 13.7% or 8.5% above Libor, this effect compounded the effect of the won-dollar exchange rate movements. This placed undue hardship on the individual small and medium borrowers. This hardship was compounded if the borrower was processing or cold storing a non exported crop where both kinds of projects gave low returns on investment. It is clear that passing foreign exchange risks to small or medium size borrowers particularly in a volatile or a high inflationary economy, are too much of a risk, particularly because these borrowers are only in the domestic market and there is no way to keep up with earning foreign exchange directly and thus to reduce the impact.

xiv. The principal lessons learned revolve around issues concerning: appraisal of the subprojects, supervision of the subprojects, technical assistance to the subborrowers, training, financial and legal aspects:

- (a) Appraisal of the Subprojects. Evaluations of management capability should be made for each proposal. Often the subborrowers had little, or no experience in the particular agribusiness. AFDC should consider requiring a higher equity

contribution from 20% to 30% by the borrowers. In some cases AFDC should or could be assisting in the financing of new and important and high cost industry; more care has to be made of the high investment costs through close supervision by AFDC; market analysis must be strengthened, as AFDC's efforts were minimal and went no further a calculation of price differentials which resulted in failure of a number of enterprises; adequate and timely raw material supply is critical to any agro-industry project and the profitability is sensitive to changes in raw material, making it critical for AFDC to make a thorough analysis of the micro availability of raw materials; and many technical issues were not addressed. AFDC must either have the in-house capability or be able to hire consultants to resolve technical issues;

- (b) Supervision of the Subprojects. Appraisal and supervision of subprojects were carried out by different divisions, provision should have been made for closer coordination. Moreover, supervision by competent professionals should be required at least once every three months in the first two years of a subproject and at least twice a year up to year four; supervision should be carried out by appraisal and supervision staff, as well as local competent consultants. Audited statements should be required for all subprojects and supervision missions by the lending institution should insist on their completion;
- (c) Technical Assistance. The agri-fishery lending institution should take a more active role in the provision of technical assistance to the subborrowers; if necessary by competent consultants. Technical advice must be precise, e.g. cold or dry stores should handle more than one product; advice should be given to minimize loss in cold storages, owners of cold stores should have close contact with producers to enhance quality and quantity; procurement of equipment should be monitored, so that the project will be upgraded to obtain optimal technical solutions with acceptable prices; market evaluations should be supported by the agri-fishery lending institution by providing information on market trends and possible new market outlets to the subborrowers;
- (d) Training. AFDC and, similarly, many agri-fishery lending institutions, or departments are not properly trained in evaluation of the main issues of this subsector. Standard manuals on appraisal are not enough, analysis of sector specific issues is critical to their success;
- (e) Financial Aspects. Repayment of interest and principal should take place more frequently than twice a year. It is recommended that payment is made at least four times a year; and
- (f) Legal Aspects. Projects early in the project cycle should develop legal procedures to hasten the legal process to recover the outstanding loan amount to prevent deterioration or non maintenance, as well as disappearance of plant equipment.

PROJECT COMPLETION REPORT

KOREA

SECOND AGRICULTURAL PRODUCTS PROCESSING PROJECT (LOAN 1851-KO)

OVERVIEW

1. The Second Agricultural Products Processing Project (Ln 1851-KO) was a continuation and expansion of the development program for agroprocessing financed under the Integrated Agricultural Products Processing Project (Loan 994-KO). It provided medium and long-term loans to the private sector through the Agriculture and Fisheries Development Corporation (AFDC). The project supported a lending program which was part of a high priority Government effort to increase income and employment in the rural areas by augmenting the value added, expand production and exports from the agriculture sector, and increase the supply and quality of processed foods to consumers. A loan of US\$50 million for the project was extended to the Government of Korea under a loan agreement signed on June 27, 1980. The project became effective on September 3, 1980 and was closed on June 20, 1985, about nine months behind schedule, with cancellations of US\$2.0 million on March 1, 1985 and US\$0.6 million on the closing date.

2. AFDC has prepared the attached Project Completion Report which has been reviewed by the division and found to be a fair and thorough account of project implementation. The Bank became well-acquainted with AFDC through the two projects, the Agricultural Sector Survey in 1983, and a proposed third project which was to be part of an Agricultural Sector Loan in 1984/5. This overview supplements AFDC's PCR with basic information on the agroprocessing sector, the borrower, and previous agricultural projects in Korea. In addition, comments are made on project implementation and conclusions.

The Agroprocessing Subsector

3. The agroprocessing subsector was studied in the context of the agricultural sector in a survey undertaken by the Bank in 1983 and is described in the Agricultural Sector Survey (Report No. 4709-KO), dated April 23, 1984. In summary:

About 4,6000 commercial firms are engaged in processing food, beverages and tobacco. These firms, accounting for 16% of the manufacturing sector's gross output, employing 175,000 workers, and providing 6% of the country's exports, are mostly small-scale processors. They are characterized by obsolete equipment, unsophisticated technology, low levels of capitalization and capacity utilization ranging from 10% for fish canning to 47% for freezing and chilled storage and 80% for flour milling. Some 6% of the firms (255) employ more than 100 workers and account for

80% of production. Almost half the firms employ fewer than 10 workers. The smallest firms are engaged in producing bean curd, marine products, and potato starch, and the largest firms are those involved in processing milk, sugar flour, edible oils, coffee and tea. Additionally, there are some 10,000-12,000 processors that have fewer than five employees and are, therefore, not included in the Government's manufacturing sector statistics. These firms, primarily involved in rice milling, employ an estimated 30,000 workers.

About 50 meatprocessors use modern technology and facilities of international standard, but the National Livestock Cooperative Federation estimates that about 140 slaughterhouses need to be renovated or replaced and plans to provide financial assistance through the Livestock Development Fund. Grain processing, particularly flour milling and corn starch processing, is capital intensive, but with the exception of eight companies engaged in baking and confectioneries, most of the processors use outmoded technology and obsolete facilities requiring substantial hand labor. The processing technology employed for horticultural and marine products is mainly limited to dehydration, freezing, canning and bottling. Drying of fish and seaweed by sunshine and coal heat has been a traditional method of processing; canned foods were introduced in the 1950s, frozen fruits and vegetables in the mid-1970s. Except for hot air drying and canning, the technology for processing fruits and vegetables is still in the development stage, and many of the small processors produce low-quality, high priced products. Most processors face shortages of funds, both for operation and facility expansion. The Government finances less than 30% of the sector's total borrowings. The shortage of operating funds for fruit and vegetable processors is aggravated by the custom of making advance payment to producers and buying a standing crop in order to have an assured supply of raw materials. In addition, the sector has to cope with seasonally unstable supplies of raw materials; the pipeline for imported materials is long and customs procedures cumbersome. The marketing of production is hampered by lack of transportation equipment, inadequate advertising efforts and a traditional distribution system that relies on commission agents to merchandise the processed goods.

Previous Projects

4. Bank assistance to Korea's agriculture sector has been in support of specific projects through 18 loans/credits totalling US\$780 million. Of this amount, about 68% has been for irrigation and rural development, 14% for storage, processing, and marketing, 14% for farm credit; 3% for livestock development and 1% for seed improvement. In the storage, processing and marketing category, the Agriculture and Fisheries Development Corporation (AFDC) has implemented two projects using Bank loans (Loans 994-KO and 1851-KO) and Seoul Metropolitan Government another (Loan 2111-KO for construction of a municipal wholesale market).

5. AFDC's first Bank loan for the Integrated Agricultural Projects Processing Project (Ln. 994-KO) provided long-term funds for onlending to private firms developing on-farm production of asparagus, mushroom, and oak mushroom; and processing and cold storage facilities for these crops as well as other specially vegetables and fruits. It also included technical assistance to help AFDC improve its operations. Total project costs were estimated at US\$20 million, of which the Bank financed US\$13 million. In all, AFDC provided 44 subloans for modernization, expansion and new construction of a wide spectrum of agroprocessing facilities, and 583 subloans for farm development, expending 72% of the funds intended for this purpose. AFDC's appraisal of individual subloans indicated financial rates of return ranging from 18-63%. The PPAR for the project estimated an overall economic rate of return of 35%. The project had significant institution-building effects, particularly with regard to the quality of appraisal and strengthening of AFDC's accounting and financial management systems.

The Borrower

6. AFDC was chartered as a state corporation in 1967 to contribute to increased farmers' incomes and a balanced supply of food products by assisting and promoting the development of the agroprocessing subsector. These original objectives were widened through legislation in 1978 and 1983 which entrusted AFDC with management of the Agricultural Products Price Stabilization Program (APPSP) and improvement of wholesale and retail markets and agricultural marketing services. To achieve these broad objectives, AFDC maintains subsidiaries and provides loans to private firms for construction and operation of facilities for storing, processing, and marketing agricultural and fisheries products. It also provides managerial and technical assistance for such firms; procures agricultural and fisheries products for the purpose of supply management and price stabilization; performs research and extension on storage and processing technology; and develops domestic and export markets for processed products.

7. Although it is a separate legal entity under the direction of an independent Board, AFDC comes under the jurisdiction of the Ministry of Agriculture and Fisheries. Its policies and certain important operational matters, e.g., annual operating plans and budgets, number of professional staff and their compensation, are subject to MAF approval. The Board of Directors is chaired by a Presidential appointee and has three ex-officio positions: the Director General of the Agricultural Policy Bureau (MAF), the Executive Secretary of the Public Enterprise Management Council (EPB), and the President of AFDC. Six other positions, by law, may be filled by persons from research or academic institutions, public enterprises, consumers' organizations, or other associations related to AFDC operations. AFDC facilities include its headquarters in Seoul, five branch offices (Seoul, Taegu, Pusan, Kwangju and Daejeon), the Food Research Institute (FRI) in Suwon, and the Agricultural Marketing Training Institute (AMTI) in Suwon.

8. AFDC's staff has grown from 407 in 1979 (238 professional and 2,169 support staff) to 420 in 1984 (282 professional and 138 support staff) to 588 (495 professional and 183 support) in August 1986. The professional staff comprise lawyers, economists, financial analysts, food technologists, engineers and marketing specialists. Some 218 staff were employed at headquarters, 261 at branch offices, 83 at FRI, and 26 at AMTI. Overall, the quality of the senior and middle-level management is high. However, because the salary range authorized by MAF for new employees does not attract mid-career professional staff, recruitment activities are aimed at recent university graduates. Consequently, AFDC's technical personnel are academically well-trained, but generally lack outside experience in their specialties.

9. In its early years (1968-72), AFDC's financial support to agroprocessors was mainly in the form of equity participation, which was considered then to be essential for stimulating private investment. AFDC made equity investments totaling W 8,800 million in 26 agroprocessing firms, most of which proved to be unprofitable and which were sold to private investors. In order to sell them, it was necessary for AFDC to convert its equity into long-term loans at zero interest. AFDC still retains total ownership of two subsidiaries: Korea Cold Storage Co., successfully operating in Seoul, and Hankuk Trading Co., which imports and exports agricultural and fishery products, mainly to Japan. In addition, it holds 40% stock ownership in Kortec, Ltd., which dries and processes tobacco under Government monopoly, and 40% in Maeil Dairy Industries Co., which received Bank Group assistance totaling US\$22.0 million (Cr. 234-KO and Ln. 1193-KO). AFDC's equity investment in its subsidiaries amounted to W 4,409 million and earned dividends of W 659.9 million in 1983.

Project Design and Implementation

10. Project Design: The project design addressed the main issues which had arisen during implementation of the first project (see PCR for Loan 994-KO). The scope of the project was widened to include a variety of agroprocessing activities, conditions of effectiveness were set as those that could be realistically met, the requirement for international competitive bidding for subprojects over the free limit was eliminated, and the types of lending activity to be undertaken were those for which AFDC had clear responsibility.

11. Lending to large companies: Even though covenants set the limit on lending to large companies at less than 40% of Bank funds, this was recurrent theme in the dialogue between AFDC and the Bank during project implementation. The Bank's position was that financially attractive subprojects should be able to obtain funding from alternative sources such as the Korea Development Bank (KDB) and Korea Long-Term Credit bank (KLB) especially if the owners of the subprojects were well-established companies in Korea. The Bank frequently urged AFDC to accelerate lending to small and medium scale processors so that AFDC would achieve the lending target set in the Loan Agreement (60% of total funds should be extended to small and medium sized processors). AFDC's argument was: (1) some types of agroprocessing require sophisticated technology and high-priced modern

equipment necessitating a heavy investment costs that small processors cannot afford; (2) although there are several institutions able to finance the agroprocessing subsector, funds for fixed investments were very limited in terms of amounts available and lending priority was given to manufacturers of export products. AFDC did hold their loans to large processors within the limit imposed by the Loan Agreement (13 subloans were extended totaling W 15,650 million or 35% of project funds). In retrospect, many of the agroprocessors promoted by the Bank loan were poor credit risks. The Bank's inflexibility on this issue is clearly a factor in AFDC's present financial difficulties; implementation of Bank projects has caused the organization to incur losses of W 2,869 million in 1985.

12. Lending for cold storage facilities: A second recurrent theme in the dialogue was lending for cold storage. A study financed under the project (carried out by Samil Company, a local accounting firm) has estimated regional requirements for additional cold storage facilities based on existing facilities and projected needs. AFDC argued that of the existing facilities, those that were more than ten years old were obsolete and should be considered for replacement of capacity. From 1981 on, the Bank urged AFDC to curtail its lending for cold storage. With few exceptions, AFDC agreed to this position. In retrospect, the cold storage facilities financed by AFDC are among its successful subloans (plants in operation without financial difficulties). Whether the Bank was able to hold expansion to the financially and economically viable limits or whether further expansion could have been supported is questionable.

13. Bad debts: In January 1984, it became apparent that a number of AFDC's subborrowers were experiencing financial difficulties, as evidenced by the number of loans in arrears (many of whom were still in the grace period and only obligated to pay interest). By the end of the year, the situation had worsened with 27 subprojects under foreclosure proceedings and repayment of another 42 subloans in arrears. The Bank's supervision mission in December 1984 focussed on AFDC's policies and procedures and made a number of recommendations to strengthen AFDC's appraisal, supervision and loan recovery procedures. In March 1982, the Bank agreed to permit AFDC to relieve certain subborrowers of the foreign exchange risk associated with subloans by denominating those subloans in local currency. However, AFDC's financial situation was imperiled to the point that it withdrew from the proposed Agricultural Sector Loan then being processed in the Bank.

14. AFDC (in their document Proposed Prepayment of Loan 1851-K0, September 1986) cited the following as the major reasons for bad debts:

- (a) The foreign exchange risks borne by the sub-borrowers were too great.
- (b) Lending priority was given to small and medium processors characterized by:
 - (1) lack of working capital to expand their operations;

- (ii) low capacity utilization rates due to unstable supplies of imported raw materials or the limited seasonality of domestic production;
 - (iii) difficulty in market development in competition with large-scale processors having well-established marketing channels; and
 - (iv) low profitability resulting from overcompetition among poor and small-scale processors.
- (c) The stable growth of the economy in the 1980s made it more difficult for newly established companies than during the period of higher inflation.
- (d) Operational difficulties encountered by particular types of processing:
- (i) Chilled storage - low profitability resulting from the Government's price stabilization policy;
 - (ii) Fish meat processing - production of major raw materials (such as Alaska pollack, corvenia) decreased and market development also proved difficult due to medium-quality of the products;
 - (iii) Drying and pickling - basically low in profitability due to little value added through simple processing; and
 - (iv) Rice milling - reduced profits due to cessation of rice import, rapidly decreasing barley production, etc.

15. Prepayment of the Bank Loan: AFDC estimated that the amortization of the Bank loan when converted into domestic currency increased by a weighted average of 34% in 1985 and 14% in the first half of 1985, as a result of the adjustment factor calculated from the currency pooling system. Because of this, the AFDC and the Government requested to partially prepay the Bank loan without prepayment penalty. The Bank agreed to waive the penalty and \$15.4 million equivalent was prepaid on November 10, 1986. AFDC expects to repay the balance in two installments of US\$4.3 million equivalent in 1987 and in 1988.

Conclusions

16. To meet the project's objectives: (a) to support a high priority Government effort to increase income and employment in the rural areas by augmenting the value added, (b) to expand production and exports from the agriculture sector and (c) to increase the supply and quality of processed foods to consumers, the following might have been done:

- (a) More emphasis might have been placed on location (favoring rural and small city sites), type of facility, and introduction

of technology rather than on size of the subborrower. This would have tended to exclude from project financing small agroprocessors relying on such traditional methods as drying and pickling and chilled storage, which account for a large portion of AFDC's bad debts.

- (b) More careful analysis of the government's agricultural policies by the Bank at appraisal and during supervision would have indicated the unprofitability of financing onion storage, in the context of the Government's price stabilization program, which was shown to have national (but not regional) overcapacity. Also, it is interesting to note that although the Bank refused to participate on economic grounds in a program to finance the renovation of the rice milling industry (for milling of government-procured grain), this project was being used to accomplish the same purpose.
- (c) Bank funds could have been placed with one of the large development finance companies (such as KDB), which have received Bank support, and earmarked for agroprocessing.

PROJECT COMPLETION REPORT

KOREA

SECOND AGRICULTURAL PRODUCTS PROCESSING PROJECT (LOAN 1851-KO)

I. INTRODUCTION

1.01 The major thrusts of the Government's agricultural development strategy in the 1970's aimed at expanding farm mechanization, increasing the output and productivity of agriculture production, mainly the diversification and expansion of high value foods, and developing storage, processing and marketing facilities for agricultural products. The Government encouraged development of the agroprocessing industry to increase income and employment in the rural area, expand the supply and quality of processed foods to meet rapidly rising consumer demand, and increase exports of processed products. In this connection, AFDC initiated the first Bank-financed project long-term funds for onlending to private firms to develop and modernize: (i) on-farm production of asparagus, mushroom and oak mushroom, and (ii) canneries, drying plants and cold storage facilities for the processing of these crops as well as other specialty vegetables and fruits. The project became effective in March 1975 and funds were fully disbursed by June 1980. The Second Agricultural Products Processing Project (Loan 1851-KO) was planned as a follow-up to the first project with an expansion in scope to provide long-term loans to a wide variety of agroprocessing enterprises. The project formed part of the Government's program for development of the agroprocessing subsector under the Fourth and Fifth Five-Year Economic Development Plans (1977-81 and 1982-86).

II. PROJECT FORMULATION

Preparation and Appraisal

2.01 AFDC employed a consulting firm in January 1979 to undertake an agroprocessing facility study which was completed in May 1979. The scope and size of the proposed project was based on the above study which projected the investment needs of the agroprocessing subsector during the period 1980-1985, the loan demand for such investments indicated by potential subborrowers to AFDC, and the lending program proposed by AFDC taking into account its loan processing capacity. During the four-year project period 1980-1983, the subsector's investment needs were estimated to be about W 242 billion (US\$ 375 million), of which the project would finance about 15%. Projected lending by six financial intermediaries other than AFDC indicated that they would finance about one-third (33%) of the investment needs, with the remaining 52% expected to be financed by the private sector.

2.02 AFDC's project preparation report was submitted to the Government and the Bank in July 1979. The project was appraised by the Bank in September/October 1979. The project was intended to come on stream so as to provide an interrupted continuity with the first project.

Project Description

2.03 The project, as planned at appraisal, supported long-term loans for the entire agroprocessing subsector. The agroprocessing enterprises eligible for financing under the project included freezing and cold storage, canning, drying, pickling and other preservation of fruits, vegetables, meat and fisheries products, oil seed extraction, grain based foods (e.g., noodles), fruit juice based beverages, dairy processing and non-food processing. All of these enterprises had been identified by the consultant study as having good prospects for expansion. The project financed improvements to existing facilities and the construction and equipping of new facilities. Investments were to be undertaken by the private sector.

2.04 The project also provided funds for training abroad of the AFDC Project Department's technical staff and employment of short-term foreign consultants to resolve specific agroprocessing processing problems, carry out market studies, and support the introduction of new technology.

2.05 AFDC anticipated about 110 - 120 subloans, ranging from about US\$150,000 to US\$1.0 million. Project covenants set a ceiling of US\$2.0 million on individual subloans, unless agreed by the Bank, and a limit of 40% of the total project funds for loans to large processors.

III. IMPLEMENTATION

Overview

3.01 The Loan and Guarantee Agreements were signed on July 27, 1980. The Loan became effective on September 3, 1980 after the Bank accepted evidence submitted by AFDC in fulfillment of conditions included establishment of a department-level unit responsible for the project. Project funds were fully financed by June 10, 1985 and loan disbursement from the Bank was completed on June 20, 1985, about nine months after the closing date originally scheduled in the Loan Agreement.

Organization and Management

3.02 The AFDC Project Unit, established as a division to implement the first project, was expanded and upgraded to a Project Department for the second project in view of the wide range of processing facilities to be financed and the need to provide adequate technical extension and market support to processors, mainly small- and medium-size industries. The Department was headed by a manager and consisted of three division--Appraisal, Technical Assistance and Credit Administration--with a total staff of 30, comprising 26 professionals and four support staff.

3.03 The Appraisal Division, responsible for appraisal of the subprojects, had a total of 14 staff, comprising five agroprocessing specialists, five financial analysts, three marketing specialists and one economist. The appraisal procedures included undertaking field investigations to assess the capability and financial standing of the sub-borrowers and competence of their technical staff, suitability of the sub-project sites in terms of their adequacy for the processing plants and location, availability of raw material input, and other related matters. Project investments were evaluated in terms of their technical feasibility and financial viability.

3.04 The Technical Assistance Division, comprising two agroprocessing experts, two processing engineers and a marketing specialist, undertook regular field visits to supervise processing facilities financed by the project, including the provision of technical extension and market support to subborrowers and other processors. Technical extension and market support included assistance to processors to: (i) raise the productivity of their processing facilities through better techniques and methods of production, utilization of machinery and plant layout, (ii) improve quality control of both the raw material input and processed output, (iii) resolve processing problems, and (iv) market their output.

3.05 The Credit Administration Division consisted of seven professional staff and four support staff. The professionals were responsible for subloan proceeds, collection of subloan repayments, preparation of progress reports, and liaison with the Bank.

3.06 Of the 26 professionals required, 12 staff were assigned to the Project Department (PD) in April 1980 at its establishment and nine positions were filled in July 1980. However, a number of staff did not have academic or professional qualifications acceptable to the Bank. In January 1981, the PD was strengthened by outside recruitment of ten staff, of whom six were suitably qualified for their positions. In spite of AFDC's efforts to appoint qualified staff through both recruitment and internal transfer, the results were not particularly successful chiefly due to various institutional constraints imposed on state-owned enterprises, particularly low salaries. AFDC advised the Bank that efforts to select better qualified staff to fill the remaining vacant positions would be concentrated on AFDC internal sources rather than recruitment outside AFDC. As a result, the four unqualified staff were replaced in July 1981 and vacant positions were filled over the next two years.

Project Lending

3.07 In the first full year of implementation after loan effectiveness in September 1980, the project was not far behind the schedule envisaged at appraisal. However, a significant share of the lending was for frozen and cold storage rather than other food processing, and large processors accounted for the majority of subloans. Increasing subloan demand for the cold storage reflected the good profitability of the cold storage industry in late 1970s, while depressed demand for food processing was attributable

largely to frustrated investment desire affected by: (i) economic recessions prevailing throughout the world at that time, and (ii) food prices increasing in 1980 and 1981 at a faster rate than income, which resulted in reduced demand for many foodstuffs. The Bank requested that: (i) further lending for freezing and cold storage be deferred to the latter part of the project period and total lending for these components not exceed the amount indicated in the Bank's Appraisal Report (37% of total lending amount) and (ii) AFDC accelerated its efforts to lend to medium and small scale processors to achieve the project objectives.

3.08 AFDC increased promotion activities by newspaper advertisements and other means to: (i) finance medium and small processors which were the principal recipients of the project funds, and (ii) to seek out potentially profitable investments covering a wide range of food processing eligible for financing under the project. As a result, the project continued to progress satisfactorily, and especially the rate of lending picked up momentum so that total lending, which had been lagging in early 1982 was again on schedule at the end of 1982. The project made a progress of 74% and 52% in terms of the approved subloan amounts and reimbursements from the Bank, respectively. Medium and small processors accounted for 60% of the subloans approved and of these, food processing accounted for 63% and cold storage 37%. These were in compliance with the project target envisaged under the Loan Agreement and in the Appraisal Report.

3.09 As of June 30, 1984, the project funds were fully committed for the original target amount of US\$63.0 million, including the Government's contribution of US\$13.0 million. Since a portion of the approved subloan amount would be cancelled due to subborrowers' savings of the project costs, lack of collateral, etc., AFDC had to receive additional loan applications to complete disbursements under the project. Therefore, AFDC proposed to the Bank that the project period be extended to February 28, 1985. The Bank agreed to the proposed extension. A total of 156 subloan applications were received, of which 128 subloans amounting to W 46,854 million were approved. Another 28 subloans amounting to W 17,826 million were withdrawn or rejected due to the applicant's weak financial standing, change of project plan, or proposed type of business outside the scope of project lending.

3.10 The loan account was closed on June 30, 1985. Disbursements by AFDC amounted to W 44,375 million, comprising W 44,103 million to 128 processors and W 272 million for technical assistance. Reimbursement from the Bank was US\$47,304,298.10 and the balance of the loan (US\$2,695,701.90) was cancelled. Annex 2 contains a list of subborrowers, their current operational status and the amount of subloan; Annex 3 shows the subloan distribution by region and type of processing.

Table 3.1: PROJECT LENDING BY TYPE OF PROCESSING

Type of Processing	Loan Disbursements	
	Number	W million
I. Freezing and cold storage facilities	35	14,366
Chill storage	16	4,360
Freezing and cold storage	19	10,006
II. Other Processing Facilities	93	29,737
Fish meat processing	13	6,075
Rice and barley mill	17	3,390
Drying (e.g., vegetable, seaweed)	17	6,440
Vegetable preservation	13	2,040
Meat processing	6	4,867
Canning	2	544
Other fish processing	4	1,005
Starch processing	4	1,835
Bean curd	3	525
Noodles	3	701
Edible oils	3	671
Other food processing	6	1,167
Non-food processing	2	477
Subtotal	128	44,103
III. Technical Assistance		272
Total	<u>128</u>	<u>44,375</u>

3.11 Subloans for cold storage facilities accounted for 33% of total disbursements and other processing, 67%.

Table 3.2: PROPORTION OF PROJECT LENDING BY TYPE OF PROCESSING

Processing Type /a	Appraisal Estimate	Loan Disbursements		
		Number	Amount (W million)	%
Freezing and cold storage	37% of less	35	14,366	33
Other processing	More than 63%	93	29,737	67
<u>Total</u>	<u>100%</u>	<u>128</u>	<u>44,103</u>	<u>100</u>

/a Based on the subborrowers' processing lines in operation at the end of 1985.

3.12 To avoid a significant concentration of large subloans and help finance the investments needs of medium and small processors, lending to large processors was limited to less than 40% of the project funds with the remaining 60% or more earmarked for lending to medium and small processors. The Government's definition of large and medium/small processors based on total assets or employment size was used for this purpose. Firms with more than W 500 million total assets or employment exceeding 300 were considered large, and those with lesser amounts of total assets or number of employees were medium/small enterprises. Actually, the definition was far from the reality of the food industry.¹ Therefore, AFDC mad a request from changing the size of eligible subborrowers (expressed in terms of the value of their total assets) from W 500 million each to W 1 billion each, which was accepted by the Bank in March 1982. In terms of size, numbers and amounts, 89% of the loans and 65% of the available funds were made to medium and small scale enterprises.

Table 3.3: DISBURSEMENTS BY SIZE OF SUBBORROWERS

Subborrowers	Fund Allocation (Loan Agreement)	Loan Disbursements			Average size of Loan (W million)
		(Number)	(W million)	(%)	
Small and Medium	60% or more	115	28,447	65	247
Large	Less than 40%	13	25,656	35	1,204
<u>Total</u>	<u>100</u>	<u>128</u>	<u>44,103</u>	<u>100</u>	<u>345</u>

3.13 Individual subloan amounts in excess of US\$500,000 required the Bank's prior approval. Subloans above the AFDC free limit number 14 or 10% of the total subloans. At appraisal, these were estimated at about one-third of the total subloans. All subloan appraisals above the free limit, including an economic rate of return analysis, had to be sent to the Bank for its review and approval. In the initial stages of the project implementation, the market and financial analysis in the subloan appraisal was not fully satisfactory and took a long time, largely because of the relative inexperience of Appraisal Division staff in project analysis. In this connection, copies of subloan appraisals below the free limit were sent to the Bank for its comment and guidance until an appraisal standard satisfactory to the Bank was achieved in July 1982.

1 In the case of the food and beverage industry, firms with more than W 6 billion total assets had been classified as large enterprises under the Small and Medium Business Act. The size was raised to W 20 billion in July 1986.

Subloan Terms and Conditions

3.14 The lending rate to subborrowers was determined by the weighted average cost of AFDC's borrowings from the Bank and the Government plus minimum 3% interest spread required by AFDC to cover its administrative costs. An interest rate of 12% under the project has been higher than that charged by other financial institutions for similar types of loan (10 - 11.5%). The subloan repayment period was determined up to 12 years, including three years grace by AFDC's cash flow estimate of each subproject. Actually, AFDC granted an average repayment period of nine years including two years grace.

Subloan Recovery and Impact on AFDC's Financial Situation

3.15 Payment of subloans is made twice yearly. If a subborrower fails to make payment, AFDC sends a letter to request prompt payment. If there is no response, a staff member visits the plant and checks out the operational status. Based on the results, AFDC begins the legal procedures to have collaterals or guarantees for subloans utilized. Public auction is held by judiciary courts. If no buyer is found, AFDC takes possession of the subproject in order to find any other possible way to recover its funds: to sell the plant to any buyer offering some funds (five year repayment with an interest of 11.5%) or to integrate it into AFDC's own operations. During project implementation, the Korea Credit Guarantee Fund provided the interim collaterals. The Credit Fund has rejected seven claims submitted by AFDC on subprojects foreclosed during construction. AFDC had to bring lawsuits against the Credit Fund to recover subloans. As a result, two subloans were recovered. Five claims are currently under consideration by the courts.

3.16 Subborrowers have increasingly faced financial difficulties since the latter half of 1984. Of the 1000 subloans outstanding at the end of 1985, 82 were in arrears, including 29 subprojects under legal proceedings (Table 3.4). Increasing foreign exchange risk on subloans was one of the major reasons for increasing bad debts. In 1986, AFDC took measures to avert the prospect of further subproject failures. Subloans for 65 small and medium processors were converted into local currency loans which relieved them of foreign exchange risks. As a result, subloans in arrears were reduced to W 5,222 million for 26 processors in December 1986.

Table 3.4: AGE BREAKDOWN OF ARREARS

	0 - 6 mos.	6 - 12 mos.	> 1 year	Total
Amount (W million)	1,251	3,516	10,724	15,491
Number of subloans	15	18	29	62
Arrearage as % of amount due	37	52	80	66

3.17 Over the past five years (1980 - 1984), AFDC's operations resulted in before tax profits of W 1,979 million despite great losses (W 2,816 million) on lending under the Bank-financed projects (Annex 1, Tables 1 and 2). In 1985, AFDC recorded a loss of W 313 million due to increased losses on Bank projects (W 2,869 million).

Technical Assistance and Training

3.18 Originally, the Loan Agreement provided financing for 100% of foreign expenditures for technical assistance, market studies and overseas training. In August 1980, AFDC requested, and the Bank agreed to, an amendment to the Loan Agreement whereby 100% of foreign expenditures or 80% of total expenditures for technical assistance would be financed. Funds allocated for technical assistance components were US\$500,000 but US\$323,004 was reimbursed as shown in Table 3.5.

Table 3.5: TECHNICAL ASSISTANCE

Category	Local -----	Foreign -----W million -----	Total -----
Regional cold storage study	13	52	65
Agroprocessing facility study	19	76	95
Employment of foreign consultants (2)	-	81	81
Overseas staff training			
Loan management (2 staff)	-	10	10
Marketing management (2 staff)	-	12	12
Agroprocessing technology (2 staff)	-	9	9
<u>Total</u>	<u>32</u>	<u>240</u>	<u>272</u>
		(US\$323,004)	

3.19 To estimate the investment needs for agroprocessing facilities, two studies were conducted with the consent of the Bank as part of the technical component of the project. One of them was the regional cold storage study completed in June 1981. The study report analyzed freezing and cold storage capacity requirements by area. These requirements were compared with existing capacities, again on an area basis. AFDC's lending for freezing and cold storage facilities was guided by the findings of the study on the future investment needs for such facilities. There was an agroprocessing study in 1983 for projected investment needs in the entire

agroprocessing subsector. Future demand for agroprocessed products was estimated on the basis of the recent trends in consumption, projected increases in population and per capita incomes, and the estimated income elasticities of demand for the products concerned. Then additional capacity to meet the project demand for the various processed products was estimated. AFDC felt obliged to conduct such a study to determine the direction of lending for agroprocessing facilities in the latter part of the project.

3.20 AFDC employed foreign experts in agroprocessing, marketing and processing engineering to: (i) assist the Project Department staff in strengthening subloan appraisal capability, technical extension to processors and preparation of proper staff training programs, and (ii) prepare a recommendation report for future development of Korea's agroprocessing industry. Two experts (one agroprocessing expert and one marketing specialist) were employed by AFDC for six months each in 1982. Originally AFDC was to employ three experts. However, since one agroprocessing specialist had accepted other commitments immediately before his assignment to AFDC, it was impossible to assign an alternative expert in his place. The consultants contributed to increased capability of the Project Department technical staff in some respects, particularly in project appraisal, and organized preparation of technical design and reports, but they did not show great competence in carrying out the terms of reference under the consultant contract, partly because their working experiences were limited to some specialized areas, and partly because it required time for them to familiarize themselves with the real features of Korea's agroprocessing industry. Since the foreign experts worked through their local counterparts, their effectiveness also depended on the quality of the counterparts.

3.21 AFDC management and staff participated in two to three week study tours abroad. A loan management team visited promotional institutions in the agroprocessing subsector in the U.S., Japan and Taiwan for three weeks in 1983. A marketing management team was sent abroad for three weeks in July 1984, mainly for observation of marketing chain activities in the same three countries. Two agroprocessing engineers visited agroprocessing companies and food research institutions in the U.S. and Denmark for two weeks in October 1984. The short-term observation tours were not able to meet the need for specialized on-the-job training to broaden the experience of technical staff to enable them to anticipate and solve design and operational problems their subborrowers would encounter. Attendance at technical short courses abroad would have been more effective.

Cost and Financing

3.22 The total project cost was estimated to be W 48,600 million on which 60% would be foreign exchange costs (Table 3.6). Directly imported equipment accounted for 7% of project costs, because civil works could be supplied locally and there were many local suppliers of agroprocessing and related equipment, including facilities to service them. Imported equipment was limited largely to sophisticated, fully automated processing lines to produce uniform and high quality products as adopted by large-scale plants. Modern equipment and methods for processing meat and dairy products, snack foods, fish meat paste, etc. were introduced for this purpose.

Table 3.6: FINAL COST AND APPRAISAL ESTIMATE

Type of processing	Appraisal Estimate					Number facil.	Final Cost				
	Local ---W million---	Foreign	Total	US\$ m	Foreign (%)		Local ---W million---	Foreign	Total	US\$ m	Foreign (%)
Freezing and Cold Storage	7,647	10,109	17,756	30.6	57	35	6,828	10,981	19,809	28.1	58
Other Processing	11,673	18,485	30,158	52.5	61	93	15,535	30,155	45,690	60.9	66
Subtotal	19,320	28,594	48,218	83.1	59	128	24,163	41,136	65,299	87	63
Technical assistance	0	387	387	0.7	100	0	82	240	322	0.4	88
Total	19,320	28,981	48,600	83.8	60	128	24,165	41,376	65,571	87.4	63

3.23 At appraisal the subborrowers were expected to finance 25% (US\$21 million) of the total project cost of US\$84 million, AFDC 15% (US\$13 million) and the Bank 60% (US\$50 million), which was equivalent to the foreign exchange cost. AFDC generally provided 75% of eligible project costs which included civil works, equipment, design and contingencies. Actually the Bank financing amounted to US\$47.304 million and the Government's contribution, equivalent to US\$13.0 million, was wholly provided to AFDC. The subborrowers' contribution increased to 32%, while the Bank and AFDC share declined to 54% and 14%, respectively. However, the proportion between the Bank and AFDC share remained unchanged on local currency basis (79:21).

Table 3.7: ACTUAL PROJECT FINANCING AND APPRAISAL ESTIMATE

Source	Appraisal Estimate		Actual Financing	
	US\$ million	%	W million	%
The Bank	50	60	35,154	54
AFDC (Government's contribution)	13	15	9,221	14
Subtotal	63	75	44,375	68
Subborrowers' contribution	21	25	21,196	32
Total	84	100	65,571	100

Procurement

3.24 AFDC's procurement procedures and arrangements were in line with those of other financial institutions in Korea. The procedures were designed to ensure that procurement would be performed with due regard for economy and efficiency. Borrowers were required to procure through local competitive bidding (LCB) or prudent shopping using the three-bid method, depending on the type of items and amounts involved:

- (a) For subprojects requiring only civil works, procurement was subject to the three-bid method for contract amounts up to US\$500,000 and LCB for amounts over US\$500,000;
- (b) For subprojects requiring only equipment, procurement was made through the three-bid method for contracts up to US\$100,000 and LCB for amounts exceeding US\$100,000; and
- (c) For procurement of both civil works and equipment under a single contract, LCB was applied to contract amounts exceeding US\$600,000.

Purchase off-the-shelf was also permitted where appropriate, normally for minor items or if it was cost effective. The final award of the contract was subject to AFDC's approval. Under the project, procurement by subborrowers was generally economical and efficient.

Disbursement and Allocation of Loan Proceeds

3.25 After the first year of the project's implementation period, the disbursement rate increased slowly, but disbursements lagged behind appraisal estimates in spite of AFDC's endeavors to achieve the lending target (para. 3.09 and 3.09).

Table 3.8: SCHEDULE OF DISBURSEMENTS

Calendar Year	<u>Cumulative Disbursements</u>		Actual/Appraisal (%)
	<u>Appraisal</u> ------(US\$ '000)-----	<u>Actual</u>	
1981	15,000	11,437	76
1982	32,000	26,554	83
1983	46,000	40,038	87
1984	50,000	45,762	92
1985		47,304	95

Table 3.9: ALLOCATION OF PROCEEDS OF LOAN

Category	Appraisal ------(US\$)-----	Actual	Actual/Appraisal (%)
Subloans for processing facilities	49,000,000	46,981,294	96
Technical assistance	500,000	323,004	65
Unallocated	500,000	-	-
Total	<u>50,000,000</u>	<u>47,304,298</u>	<u>95</u>

IV. FINANCIAL AND ECONOMIC EVALUATION

4.01 The project has attained the following economic benefits:

- (a) establishment of 128 agroprocessing facilities including improvements in five existing plants;**
- (b) creation of 3,500 jobs in processing at an estimated cost of US\$24,800 per job;**
- (c) temporary employment for about 2 million mandays annually, excluding employment of workers for construction the processing facilities;**
- (d) freezing, cold storage and processing of a wide variety of agricultural, livestock and fishery products valued at W 210 billion in 1985;**
- (e) yearly export earnings of US\$35 million (e.g., frozen strawberries, processed chestnuts, snack foods, fish meat paste);**
- (f) reduced wastage of farm produce from spoilage and loss through the provision of additional processing and cold storage capacity, and improved efficiency of processing; and**
- (g) non-quantifiable benefits such as improvements to public health through increased supply of better quality and larger variety of processed foods and other agricultural products processed at more hygienic facilities.**

The table below shows the project achievements in comparison to those envisaged at appraisal.

Table 4.1: PROJECT PERFORMANCE

	Appraisal Estimate (at full development)	Actual (in 1985)
FRR (%)	24	14
Exports (US\$ million)	-	35
Employment (jobs)	5,000	3,500
Processed products (W billion)	282	210

Financial Rate of Return

4.02 At appraisal the overall financial rate of return (FRR) for the types and numbers likely to be financed was estimated at about 24%, based on typical models of each of the subprojects. The estimated overall economic rate of return (ERR) was about 21%. The financial rate of return, after financing was less than anticipated at appraisal, ranging from 11% to 17% with an overall FRR of about 14%. These are based on the typical processing plants now in normal operation (Annex 4, Tables 1-8).

Table 4.2: FINANCIAL RATE OF RETURN

Typical Model	Appraisal	Actual
Chill storage	26	15
Freezing and cold storage	22	15
Meat processing	21	17
Rice mill	-	11
Drying	31	13
Vegetable preservation	35	15
Overall / <u>a</u>	24	14

/a Based on weighted average of investment costs

Operational Status of the Subborrowers

4.03 At the end of 1986, 108 subprojects or 84% of the 128 cold storage and processing facilities financed under the project were in operation. Another 17 subprojects (13%) were closed down, mainly for financial difficulties and the remaining three subprojects (3%) were being used for purposes other than processing (Table 4.3). Processors in freezing and cold storage, canning and meat processing are in normal operation. Success in freezing and cold storage operation lies in the fact that such facilities are situated in large production areas like Busan or in the vicinity of large consumption areas. Subloans for canning and meat processing were disbursed to large processors or much experience companies.

4.04 Meanwhile, processors engaging in chill storage, fish meat processing, drying and vegetable preservation have not shown good operational results. Since most chill storage operators depend on the storage of onions, their business success is affected by the production and price trend of onions. For the past five years, Government price stabilization schemes for this crop have not been in favor of storage operators. Especially in 1981 and 1982, when most subborrowers were in their first or second operating year, their operating loss in onion storage was too great to sustain. Low operating performance in fish meat processing is attributable to difficulty in market development and decreasing raw material production like Alaska pollack and corvenia. Since subborrowers are mostly medium sized processors producing relatively high prices, medium quality products, they have to compete with poor and small-sized processors' low priced, low quality products and the large processors' high quality products. Drying and vegetable preservation industries are in low capacity utilization due to the seasonality of raw material production and overcompetition among small processors.

Table 4.3: CURRENT OPERATIONAL STATUS OF SUBPROJECTS

Type of Processing	Operational Status				Ownership		
	Operating	Closed Down /a	Other /b	Total	Unchanged	Trans- ferred	Total
Chill storage	13	2	1	16	7	9	16
Freezing and cold storage	19	0	0	19	18	1	19
Fishmeat processing	12	1	0	13	6	7	13
Rice milling	16	1	0	17	17	0	17
Drying	13	4	0	17	15	2	17
Vegetable preservation	9	4	0	13	6	7	13
Meat processing	6	0	0	6	5	1	6
Other processing	20	5	2	27	18	9	27
Total	108	17	3	128	92	36	128
	100%	13%	2%	100%	72%	28%	100%

4.05 As compared with large processors, small and medium processors, accounting for 89% of the subloans, encounter many operational problems in carrying out their business due to lack of working capital and competent personnel, relatively slow response to changing market conditions, market development requiring higher cost with one product or a few products, increasing market entry by foreign brand processed foods, consumers; preference for famous brands, large processors' participation in producing prospective intermediate products, etc. However, in recent years, subborrowers have got into severe financial difficulties in part because of the foreign exchange risk on the Bank loan. Large processors financed under the project have till now no problems, while few small firms have the resources to sustain losses during the downturns in their business cycles.

4.06 To date, ownership of 36 subprojects or 28% of the total subloans has already been transferred to other processors apparently because of operational problems enumerated above. Some part of subproject failure would be found in superficial evaluation of subprojects to achieve the lending target. Especially, subloan appraisal for inexperience, newly established companies should have been more prudent.

4.07 The follow measures have been taken to assist subborrowers, especially small and medium processors, in improving their operating status:

- (a) The Government made a local currency loan to AFDC in the amount of W 17.1 billion so that AFDC could refinance 65 still operating small and medium size subprojects that had received subloans from the Bank loan. The lending rate to subborrowers is 12% p.a.² and the repayment period has been extended to one to four years from the previous commitment period, based on the foreign exchange loss of each subproject. By refinancing these subloans with local currency, the subborrowers were relieved of the foreign exchange risk.
- (b) For chill storage operators, electricity charges account for about 37% of their chill storage costs. On the recommendation of the Chill Storage Operators Association, the Government has reduced their electricity charges by some 40% by applying farming purpose electricity charges (basic W 1,019/kW, additional W 35/kWh). Previously, industrial use charges were applied (basic W 3,495/kW, additional W 52/kWh).
- (c) Working capital financing has been increased. Especially, the list of commodities eligible for financing under raw material procurement loans has been expanded (i.e., potatoes, carrots, ginger).

2 The lending rate was reduced to 11% on January 1, 1987.

- (d) AFDC provided market outlet arrangements for small and medium processors. Their products are distributed to AFDC's direct sales stores. Their intermediate goods like fish meat paste are supplied to AFDC's subsidiary company or other large processors; and
- (e) Technical extension and training for processors are provided by AFDC's Food Research Institute. Technical assistance provided includes instant food packaging, oil extraction techniques, and storage methods for natural pine mushroom.

V. INSTITUTIONAL PERFORMANCE AND DEVELOPMENT

5.01 The project helped AFDC to strengthen its capability to carry out its role as a development finance organization, i.e., to select viable enterprises and provide the financial, managerial and technical assistance, as needed, for implementation of agroprocessing subprojects which generate non-farm jobs for rural workers and offer alternative market outlets for farmers' production. To improve the effectiveness of its appraisal, supervision and technical assistance, AFDC upgraded training programs for its Project Department staff which included on-the-job training by senior staff and short-term overseas study tours. AFDC supplemented, from time to time, its technical capability by recruiting both local and foreign consultants when needed for appraisal, market studies or other activities.

5.02 In the course of the implementation of the Bank-financed project, AFDC has been gradually realized as the agency exclusively responsible for development of the agroprocessing industry. Under the rural industry promotion program implemented in 1985, the Government is planning to establish 150 rural industrial complexes throughout the country. AFDC assumed responsibility for financial and non-financial support to the agroprocessing subsector under the program. The lending target in 1986 was W 20 billion and the comparable volume in 1987 is expected to be W 30 billion, of which some 20% will be for agroprocessing facilities (cold) storage and rice milling is not eligible for financing under the program).

5.03 AFDC was created as a development agency to support and engage in measures designed to contribute to increased farm income and a balanced supply of food products. These measures have been expanded over time to include development and promotion of the agroprocessing industry, administration of the Agricultural Products Price Stabilization Program (APPSP), research on food processing technology, and improvement of agricultural marketing, including marketing training at its Agricultural Marketing Training Institute. AFDC's activities would be widened under the proposed Agriculture and Fisheries Marketing Corporation (AFMC), which would substitute for AFDC. The proposed AFMC is now under consideration by the National Assembly.³ AFDC's future activities would involve:

- (i) specializing in import of agricultural and fishery products for price

3 AFMC was approved by the National Assembly on December 31, 1986.

stabilization and policy purposes, (ii) taking over marketing support services (i.e., information, training, food research and developments) as its own operation from currently government-sponsored operations, (iii) promoting development of the flower industry, (iv) strengthening overseas market information services including establishment of a branch office, (v) gradual expansion of barter trade to export surplus produce such as apple, pear, garlic and onion, and (vi) export market development for prospective items like tomato, cucumber and strawberry, (vii) controlling the direct operation of the APPSP, and (viii) transfer of some items (i.e., sesame, red bean), under buffer stock operation into AFDC's own operation.

VI. BANK PERFORMANCE

6.01 In all there were six supervision missions during project implementation. Through supervision missions and review of subloans, the Bank has made a significant contribution to institutional development of AFDC as a stronger and truly development-oriented organization. The Bank's assistance ranged from review and comments of subloan appraisal reports to the selection of consultant candidates, suggestions on market studies and procurement procedures, and upgraded training program. In early 1984 the project showed evidence that a number of subborrowers were experience financing difficulties. The Bank pointed out some specific areas to be focussed in subproject appraisal, including creditworthiness of the borrower, reliability and completeness of his financial statements, the sensitivity of the financial analysis to product price decreases or raw material price increases, and the accuracy of market projections. This helped AFDC to select more financial responsible borrowers and more viable projects for the next lending activities. In particular, the December 1984 supervision mission focussed mainly on the issue of subproject foreclosures, paying particular attention to AFDC's policies and procedures for appraisal, supervision, loan administration, and technical assistance. The mission's findings and recommendations were helpful to AFDC as it works out a solution to the problem of foreclosures. Bank supervision of the project was also adequate in terms of frequency of supervision missions.

VII. CONCLUSIONS

7.01 Development of the agroprocessing industry was an objective of the Government's Fifth Five-Year Plan (1982-86). Justification for adopting the objective rested on satisfying consumer demand for processed agricultural, livestock and fisheries products, and increasing rural incomes and creating additional employment. The project played an important role in achieving this, resulting in increased rural income and employment, although it did not reach the levels anticipated at appraisal.

7.02 The main lessons to be learned from the second project are:

- (a) Project design. The project design addressed the main issues that had arisen during implementation of Loan 994-KO (discussed in the overview of the Project Performance Audit Report), such as project scope, project organization, effectiveness conditions and project procurement. Those same issues did not arise again during the second project.
- (b) Large agroprocessors. Since the scale of operations in the agroprocessing industry was getting larger in line with the growth of the economy and certain types of agroprocessing business would be highly capital intensive requiring introduction of advanced foreign technology and equipment, AFDC proposed more subloans to large companies. The number of bad debts might not have been so great if the Bank had agreed to a greater portion of the loan being extended to large agroprocessors.
- (c) Cold storage. The loan could have supported more cold storage companies since cold stores located in large fishing ports have enjoyed comparatively high utilization rates. AFDC proposed subloans for cold storage facilities, especially around the Busan area, and the Bank continuously urged AFDC to hold down on the number of such subloans to prevent overcapacity. Cold storage companies in these areas are doing well.

AFDC: AUDITED INCOME STATEMENTS (1980 - 85)
(W million)

	1980	1981	1982	1983	1984	1985
<u>Operating Income</u>						
Interest income on loans	3,200	4,670	6,534	9,967	11,379	12,165
Interest on deposits	61	109	17	30	9	130
Dividends	192	40	163	660	1,677	557
APPSP purchase and sales / <u>a</u>	1,595	2,062	2,669	2,559	7,172	11,205
Commissions and such	127	235	287	407	529	1,844
<u>Total</u>	<u>5,175</u>	<u>7,116</u>	<u>9,670</u>	<u>13,623</u>	<u>20,765</u>	<u>25,900</u>
<u>Operating Expenses</u>						
Interest expense on L/T borrowings	1,122	1,773	2,758	4,519	5,232	5,641
Interest expense on S/T borrowings	988	1,644	1,802	2,380	2,013	1,814
Administrative expenses	1,160	1,468	2,107	2,868	9,614	12,705
APPSP expenses	1,595	2,062	2,669	2,559	2,439	5,857
Commitment charges and such	90	295	172	265	187	1,639
<u>Total Operating Expenses</u>	<u>4,955</u>	<u>7,242</u>	<u>9,508</u>	<u>12,591</u>	<u>19,485</u>	<u>27,656</u>
<u>Operating Income/(Losses)</u>	<u>220</u>	<u>(126)</u>	<u>162</u>	<u>1,032</u>	<u>1,280</u>	<u>(1,756)</u>
<u>Other Income/(Losses)</u>						
Gain on securities sold		717				
Amortization of foreign currency losses	(216)	(327)	(327)	(327)	(154)	(469)
Gains on foreign currency accounts	(73)	31	122	60		
Miscellaneous income	(6)	75	(11)	(2)	(151)	1,912
<u>Total Other Income/(Losses)</u>	<u>(295)</u>	<u>496</u>	<u>(216)</u>	<u>(269)</u>	<u>(305)</u>	<u>(1,443)</u>
<u>Net Income Before Income Taxes</u>	<u>(75)</u>	<u>370</u>	<u>(54)</u>	<u>763</u>	<u>975</u>	<u>(313)</u>
Less: Income tax	33	104	185	199	526	747
<u>Net Income/(Losses)</u>	<u>(108)</u>	<u>266</u>	<u>(239)</u>	<u>564</u>	<u>449</u>	<u>(1,060)</u>

/a Until 1984, the Government fully underwrote the cost of implementing the Agricultural Products Price Stabilization Program, since then AFDC has received a certain commission on total sales basis.

AFDC: AGRICULTURAL PRODUCTS PROCESSING PROJECTS
INCOME STATEMENTS (1980 - 1985)
(W million)

	1980	1981	1982	1983	1984	1985
<u>Operating Income</u>						
Interest income on loans	1,144	1,820	3,182	4,991	5,949	6,850
Interest on deposits	32	70	6	17	1	1
Commitment fees	4	70	72	90	76	11
<u>Total Operating Income</u>	<u>1,180</u>	<u>1,960</u>	<u>3,260</u>	<u>5,098</u>	<u>6,026</u>	<u>6,862</u>
<u>Operating Expenses</u>						
Interest expense on L/T debt	802	1,466	2,375	3,537	3,923	4,130
Commitment charge and other	101	230	182	97	40	8
Personnel expenses	135	168	181	213	177	174
Technical assistance service fees		65	81	105	20	
Other operating expenses	40	153	201	924	77	84
Provision for possible losses on debts					3,966	5,455
<u>Total Operating Expenses</u>	<u>1,078</u>	<u>2,082</u>	<u>3,020</u>	<u>4,876</u>	<u>8,103</u>	<u>9,551</u>
<u>Operating Income/(Losses)</u>	<u>102</u>	<u>(122)</u>	<u>240</u>	<u>222</u>	<u>(2,077)</u>	<u>(2,989)</u>
<u>Other Income/(Losses)</u>						
Amortization of foreign currency losses	(96)	(199)	(108)	(199)	(199)	(599)
Other	(37)	(4)	(3)	129	(161)	719
<u>Total Other Income</u>	<u>(133)</u>	<u>(203)</u>	<u>(111)</u>	<u>(328)</u>	<u>(360)</u>	<u>120</u>
<u>Net Income/(Losses)</u>	<u>(31)</u>	<u>(325)</u>	<u>129</u>	<u>(152)</u>	<u>(2,437)</u>	<u>(2,869)</u>
Deficit at beginning of year	336	367	692	515	363	3,514
Prior period adjustment -						
Losses (gains)			(48)		714	(2,925)
Deficit at end of year	367	692	515	363	3,514	3,458

LIST OF SUBBORROWERS (LOAN 1851 - KO)

Type of Processing	Name of Company	Plant Site	Disbursement (W million)	Operational status /a
Chill storage	Daehan Mongsan Co.	Hannam, Kyongnam	269	A.O
	Daejin Industry Co	Oyang, Chungnam	268	C.N
	Sampoong Mongsan Co.	Ansung, Kyongki	283	B.N
	Namyang Industrial Co.	Changnyong, Kyongnam	345	0
	Hansung Industrial Co.	Muan, Channam	237	F.U
	Sinjin Agricultural Co.	Changnyong, Kyongnam	205	0
	Ilkwang Cold Storage Co.	Wonju, Gangwon	119	D.O
	Daedo Industrial Co.	Hampyong, Chonnam	283	D.O
	Eunha Agricultural Co.	Kimhae, Kyongnam	384	E.O
	Poongye Agriculture Co.	Yongpoong	290	A.O
	Chungwoo Mongsan Co.	Hampyong, Channam	271	C.O
	Hahmyang Mongsan Co.	Hamyang, Kyongnam	251	D.O
	Daehan, Shin-Yak Co.	Woolju, Kyongnam	313	0
	Changsung Industry Co.	Kimhae, Kyongnam	289	0
<u>Subtotal</u>	<u>16</u>		<u>4,369</u>	
Freezing and cold storage	Samwon Industrial Co.	Inchon	565	0
	Yusung Cold Storage Co.	Anyang, Kyongki	691	0
	Dongwon Cold Storage Co.	Suwon, Kyongki	946	0
	Dong-A Cold Storage Co.	Yongin, Kyongki	386	0
	Gihung Cold Storage Co.	Yongin, Kyongki	313	0
	Eoseong Fishery Cold Storage Co.	Myongju, Gangwon	73	A.O
	Taeju Sanup Co.	Daejon, Chuynam	100	0
	Uijin Fisheries Co.	Uijin, Kongbuk	1,000	D.O
	Hanil Cold Storage Co.	Dalsung, Kyongbuk	319	0
	Shinjin Fisheries Co.	Wolsung, Kyongbuk	235	0
	Daekyung Fisheries Co.	Pusan	288	0
	Dadal Mulsan Co.	Pusan	1,075	0
	Dadal Mulsan Co.	Pusan	1,376	0
	Daebu Sanup Co.	Pusan	323	0
	Sekye Co.	Pusan	1,492	0
	Sejin Cold Storage Co.	Pusan	99	0
	Daejin Cold Storage Co.	Iri, Chonbuk	305	0
	Bumhan Co.	Jonju, Chonbuk	172	0
	Hanju Industrial Co.	Gohung, Chonnam	338	0
<u>Subtotal</u>	<u>19</u>		<u>10,006</u>	

- /a A : Legal actions completed
 B : Legal procedures in progress
 C : AFDC take-over
 D : AFDC take-over and sold-out
 E : Claim for Credit Fund Guarantee Completed
 F : Under claim for Credit Fund Guarantee
 N : Non-operating (closed down)
 O : Operating
 U : Being used for other purpose

LIST OF SUBBORROWERS (LOAN 1851 - KO)

Type of Processing	Name of Company	Plant Site	Disbursement (W million)	Operational status /a
Fish meat processing	Echeon Foods Co.	Echeon, Kyongki	581	A.0
	Woojin Foods Co.	Yongin, Kyongki	648	F.0
	Namjung Foods Co.	Chungju, Chungbuk	481	D.0
	Hwajin Foods Co.	Nonsan, Chungnam	782	0
	Wujin Co.	Gyongsan, Kyongbuk	358	D.0
	Yonghae Sanup Co.	Youngduck, Kyongbuk	827	C.0
	Hando Mulsan Co.	Gyongsan, Kyongbuk	348	A.0
	Daekung Foods Co.	Geochang, Kyongnam	233	0
	Woori Foods Co.	Wulsan, Kyongnam	384	D.0
	Manna Foods Co.	Kwangju, Chonnam	290	D.0
	Yusung Foods Co.	Sinan, Chonnam	879	B.0
	Hyundai Foods Co.	Muan, Chonnam	340	N
	Oyang Fisheries Co.	Pusan	479	0
<u>Subtotal</u>	<u>13</u>		<u>6,075</u>	
Rice and barely mill	Pyongteak Milling Co.	Seoul	380	N
	Sihung Milling Co.	Sihung, Kyongki	243	0
	Poongwon Rice Mill	Gangrung, Gangwon	135	0
	Seohung Mulsan Co.	Okchon, Chungbuk	168	F.0
	Daesung Sanghoe Co.	Yongju, Kyongbuk	184	0
	Shijang Ricke Mill	Gumi, Kyongbuk	49	0
	Hamyang Sanup Co.	Hamyang, Kyongnam	288	0
	Kumkang Industrial Co.	Haenam, Chonnam	278	0
	Cheongho Industrial Co.	Nokpo, Chonnam	185	0
	Daerim Rice Mill	Yongkwang, Chonnam	247	0
	Hungyang Milling Co.	Gohung, Chonnam	198	0
	Nanyang Rice Mill	Naju, Chonnam	247	0
	Samo Rice Mill	Naju, Chonnam	224	0
	Sinahn Sanup Co.	Sinahn, Chonnam	212	0
	Doyang Rice Mill	Gohung, Chonnam	248	0
	Songoek Rick Mill	Yongkwang, Chonnam	238	0
	Yongnam Rice Mill	Naju, Chonnam	229	0
<u>Subtotal</u>	<u>17</u>		<u>3,398</u>	
Drying	Gihung Cold Storage Co.	Yongin, Kyongki	164	0
	Daeyang Foods Co.	Yeochon, Chonnam	231	0
	Hongik Sanup Co.	Hampyeong, Chonnam	288	B.0
	Daeyong Fisheries Co.	Sinahn, Chonnam	32	0
	Pyongjin Nongsusan Co.	Yongam, Chonnam	215	0
	Nhong Shim Co.	Ansung, Kyongki	2,508	0
	Taegyong Nongsan Co.	Anyang, Kyongki	387	0
	Samyang Agro-fisheries Co.	Yongin, Kyongki	928	0
	Kyongki Cold Storage Co.	Yongin, Kyongki	152	0
	Hankuk Foods Co.	Pyongteak, Kyongki	145	0
	Jugam Co.	Chongwon, Chungbuk	253	0
	Shinmi Nongsan Co.	Wolsung, Kyongbuk	115	C.0
	Miyang Co.	Hamyang, Kyongnam	197	F.N
	Songam Nongsan Co.	Gwangsan, Chonnam	248	0
	Wujung Sanup Co.	Hampyeong, Chonnam	198	F.N
	Saehwa Mulsan Co.	Muan, Chonnam	187	E.N
	Paeksan Industrial Co.	Muan, Chonnam	314	C.N
<u>Subtotal</u>	<u>17</u>		<u>6,448</u>	

LIST OF SUBBORROWERS (LOAN 1851 - K0)

Type of Processing	Name of Company	Plant Site	Disbursement (W million)	Operational status /a
Vegetable preservation	Hannong Co.	Hwasung, Kyongki	68	0
	Miyang Nongsan Co.	Yonchon, Kyongki	123	0
	Daeil Nongsan Co.	Donghae, Gangwon	198	0
	Yuwon Foods Co.	Wonju, Gangwon	161	0
	Kumkang General Foods	Chongwon, Chungbuk	85	0
	Samjung General Foods	Yongcheon, Kyongbuk	239	C.O
	Seoul General Foods	Hanam, Kyongnam	155	D.O
	Soo Jung Foods Co.	Eochang, Kyongnam	216	D.O
	Shin-A Silup Co.	Changnyong, Kyongnam	252	N
	Daegaya Foods Co.	Goryong, Kyongbuk	132	C.N
	Honahm Foods C.	Naju, Chonnam	119	A.N
	Kumyong Co.	Naju, Chonnam	245	D.O
	Sinil Nongsan Co.	Hampyong, Chonnam	122	C.N
<u>Subtotal</u>	<u>13</u>		<u>2,040</u>	
Meat processing	Chail Sugar Co.	Echeon, Kyongki	2,527	0
	Boosung Sanup Co.	Pyongtaek, Kyongki	98	0
	Kyongnam Broiler Co.	Yangju, Kyongki	72	0
	Jeil Farm Co.	Umseong, Chungbuk	1,418	0
	Gunyong Foods Co.	Iri, Chonbuk	374	0
	Bumhan Co.	Jonju, Chonbuk	396	0
<u>Subtotal</u>	<u>6</u>		<u>4,867</u>	
Canning	Haitai Agro-fisheries Co.	Jeu	225	0
	Kumkang Fisheries Co.	Yongil, Kyongbuk	319	C.N
<u>Subtotal</u>	<u>2</u>		<u>544</u>	
Other fish processing	Woojin Mulsan Co.	Sekcho, Gangwon	152	0
	Daechang Co.	Pyongtaek, Kyongki	146	0
	Jungon Sanup Co.	Yongduck, Kyongbuk	612	0
	Daekyung Fisheries Co.	Pusan	95	0
<u>Subtotal</u>	<u>4</u>		<u>1,005</u>	
Starch processing	Doosan Grain Co.	Echeon, Kyongki	1,015	0
	Oksan Industrial	Hampyong, Chonnam	243	O.N
	Songdo Co.	Muan, Chonnam	322	0
	Dongwu Jebun Co.	Hampyong, Chonnam	255	C.N
<u>Subtotal</u>	<u>4</u>		<u>1,835</u>	
Bean curd	Kyungsan Foods Co.	Kyungsan, Kyongbuk	71	0
	Dongjae Foods Co.	Damyang, Chonnam	267	D.O
	Honam Mulsan Co.	Muan, Chonnam	167	A.N
<u>Subtotal</u>	<u>3</u>		<u>525</u>	
Noodle	Gumi Foods Co.	Damyang, Chonnam	123	U
	Daeju Foods Co.	Umsung, Chungbuk	173	A.O
	Wha Young Co.	Inchon	465	0
<u>Subtotal</u>	<u>3</u>		<u>761</u>	

LIST OF SUBBORROWERS (LOAN 1851 - KO)

Type of Processing	Name of Company	Plant Site	Disbursement (W million)	Operational status /a
Edible oils	Daebo Nongsan Co.	Echeon, Kyongki	349	B.O
	Daebo Nongsan Co.	Echeon, Kyongki	227	B.O
	Daewon Edible Oils Co.	Pyongtaek, Kyongki	95	B.O
<u>Subtotal</u>	<u>3</u>		<u>671</u>	
Ice cream Soybean milk Fermented soybeans Refined salt Bakery Persimmon processing	Korean Ginseng Products Co.	Sungnam, Kyongki	276	0
	Dongsung Foods Co.	Daegu	387	C.O
	Taesung Nongsan Co.	Wulju, Kyongnam	218	0
	Sangoo Salt Farm C.	Hwansung, Kongki	288	0
	Selomon Confectionery	Sihung, Kyongki	34	A.O
	Wull Industry Co.	Sangju, Kyongbuk	49	U
<u>Subtotal</u>	<u>6</u>		<u>1,167</u>	
Non-food processing	Sun nong Co.	Iksan, Chonbuk	387	0
	Jungnong Sanup Co.	Yongam, Chonnam	170	0
<u>Subtotal</u>	<u>2</u>		<u>477</u>	
<u>Total</u> =====	<u>128 Subborrowers</u> =====		<u>44,163</u> =====	

ANNEX 8
Table 1

LOAN DISTRIBUTION BY REGION AND PROCESSING TYPE

Type of processing	Area	Seoul Inchon Kyongki	Chungbuk	Chungnam	Chonbuk	Chonnam	Kyongbuk Daegu	Kyongnam	Pusan	Gangwon	Jeju	Total
Freezing & Cold storage	Chill Storage (fruits, vegetable)	¹ (283)		¹ (288)		⁸ (781)	² (803)	⁷ (2,066)		¹ (119)	¹ (820)	¹⁶ (4,360)
	Freezing & cold storage (fish, meat)	⁵ (2,621)		¹ (100)	² (477)	¹ (380)	⁸ (1,554)		⁶ (4,651)	¹ (73)		¹⁹ (10,008)
Other food processing	Fish meat processing	² (1,144)	¹ (461)	¹ (762)		⁸ (1,309)	⁸ (1,823)	² (597)	¹ (479)			¹³ (6,075)
	Rice & barley mill	² (543)	¹ (160)			¹⁰ (2,199)	² (153)	¹ (200)		¹ (185)		¹⁷ (3,390)
	Drying (vegetable, seaweed)	⁸ (4,200)	¹ (253)					¹ (197)				¹⁷ (6,440)
	Vegetable preservation	² (191)	¹ (85)		¹ (119)	⁸ (1,675)	¹ (115)	⁸ (617)				¹³ (2,040)
	Meat processing	⁸ (2,687)	¹ (1,410)		² (770)	² (367)	² (370)	³ (617)		² (291)		⁶ (4,867)
	Canning						¹ (319)				¹ (225)	² (544)
	Other fish processing	¹ (146)					¹ (612)		¹ (95)	¹ (182)		⁴ (1,005)
	Starch processing	¹ (1,015)				³ (820)						³ (1,835)
	Bean curd					² (454)	¹ (71)					³ (525)
	Noodles	¹ (405)	¹ (173)			¹ (123)						³ (701)
	Edible oils	³ (671)										³ (671)
	Other food processing	³ (598)					² (356)	¹ (213)				⁶ (1,167)
Non-fish processing	Outpost making				¹ (307)	¹ (170)						² (477)
Total		²⁰ (14,704)	⁶ (2,542)	³ (1,150)	⁶ (1,673)	⁸⁴ (8,228)	¹⁶ (5,375)	¹⁵ (3,890)	⁶ (5,225)	⁶ (770)	² (545)	¹² (44,103)

Note: Figures in parentheses indicate disbursement in W million.

ANNEX 4
Table 1

SECOND AGRICULTURAL PRODUCTS PROCESSING PROJECT (1951-KG)
FINANCIAL RATE OF RETURN FOR CHILL STORAGE SUBPROJECT
(in million Won)

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Revenues												
Sales revenue	147	246	322	322	322	322	322	322	322	322	322	322
Residual value of fixed assets												
Total	147	246	322	322	322	322	322	322	322	322	322	322
Costs												
Project investment & capital expenditures	389											
Working capital	3	2	19	6	6							
Operating expenditures	185	195	219	244	244	244	244	244	244	244	244	244
Interest payment of S/T borrowing	1	1	1	1	1	1						
Total	578	198	239	251	258	245	244	244	244	244	244	244
Net Incremental Benefit Stream	(381)	45	83	71	72	77	78	78	78	78	78	213
FRR = 15.2%												

ANNEX 4
Table 2

FINANCIAL RATE OF RETURN FOR FREEZING AND COLD STORAGE
SUBPROJECT (LARGE SIZE PLANT)
(in million Won)

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Revenues												
Sales revenue	2,100	3,656	4,716	4,819	4,819	4,819	4,819	4,819	4,819	4,819	4,819	4,819
Residual value of fixed assets												542
Total	2,200	3,656	4,716	4,819	4,819	4,819	4,819	4,819	4,819	4,819	4,819	5,361
Costs												
Project investment & capital expenditures	1,555	-	-	-	-	100	-	-	-	300	-	-
Working capital	155	196	142	68	48	-	-	-	-	-	-	-
Operating expenditures	2,100	3,330	4,355	4,335	4,436	4,436	4,436	4,436	4,436	4,436	4,436	4,436
Interest payment of S/T borrowing	10	20	20	20	15	10	5	-	-	-	-	-
Total	3,822	3,546	4,517	4,523	4,499	4,546	4,441	4,436	4,436	4,736	4,736	4,436
Net Incremental Benefit Stream	(1,613)	110	199	296	320	273	378	383	383	83	383	925
FRR = 13.8%												

ANNEX 4
Table 3

FINANCIAL RATE OF RETURN FOR FREEZING AND COLD STORAGE
SUBPROJECT (SMALL SIZE PLANT)
(in million Won)

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Revenues												
Sales revenue	884	814	788	805	805	805	805	805	805	805	805	805
Residual value of fixed assets												149
Total	884	814	788	805	805	805	805	805	805	805	805	954
Costs												
Project investment & capital expenditures	474	-	-	-	-	16	-	-	-	28	-	-
Working capital	6	57	18	18	28	-	-	-	-	-	-	-
Operating expenditures	338	524	685	788	788	788	788	788	788	788	788	788
Interest payment of S/T borrowing	2	5	5	5	4	3	2	1	-	-	-	-
Total	812	586	788	715	714	713	782	781	782	728	788	788
Net Incremental Benefit Stream	(448)	22	88	88	81	82	123	124	123	85	125	254
FRR = 15.5%												

FINANCIAL RATE OF RETURN FOR MEATPACKING SUBPROJECT
(in million Won)

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Revenues												
Sales revenue	4,814	6,952	6,698	8,720	6,720	8,720	8,720	8,720	8,720	8,720	8,720	8,720
Residual value of fixed assets												550
Total	4,814	6,952	6,698	8,720	6,720	8,720	8,720	8,720	8,720	8,720	8,720	9,270
Costs												
Project investment & capital expenditures	1,605	-	-	-	-	150	-	-	-	200	-	-
Working capital	22	124	78	1	50	-	-	-	-	-	-	-
Operating expenditures	4,242	6,678	6,257	8,273	8,273	8,273	8,273	8,273	8,273	8,273	8,273	8,273
Interest payment of S/T borrowing	7	20	20	20	15	10	5	-	-	-	-	-
Total	5,876	6,817	6,355	8,294	8,338	8,433	8,278	8,273	8,273	8,473	8,273	8,273
Net Incremental Benefit Stream	(1,062)	135	343	426	382	287	442	447	447	247	447	997
FRR = 19.6%												

FINANCIAL RATE OF RETURN FOR CHICKEN SLAUGHTERING SUBPROJECT
(in million Won)

	1st	2nd	3rd	4th	5th	6th	7th	8th	9TH	10TH	11TH	12TH
Revenues												
Sales revenue	292	1,268	1,585	1,585	1,585	1,585	1,585	1,585	1,585	1,585	1,585	1,585
Residual value of fixed assets												47
Total	792	1,268	1,585	1,585	1,585	1,585	1,585	1,585	1,585	1,585	1,585	1,632
Costs												
Project investment & capital expenditures	168	-	-	-	-	-	-	10	-	-	-	-
Working capital	13	25	15	10	10	-	-	-	-	-	-	-
Operating expenditures	779	1,233	1,542	1,542	1,542	1,542	1,542	1,542	1,542	1,542	1,542	1,542
Interest payment of S/T borrowing	1	3	3	3	2	1	-	-	-	-	-	-
Total	959	2,261	1,560	1,555	1,554	1,543	1,542	1,542	1,542	1,542	1,542	1,542
Net Incremental Benefit Stream	(167)	7	25	33	31	42	43	33	43	43	43	90
FRR = 15%												

FINANCIAL RATE OF RETURN VEGETABLE DRYING SUBPROJECT
(In million Won)

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Revenues												
Sales revenue	249	423	538	538	538	538	538	538	538	538	538	538
Residual value of fixed assets	-	-	-	-	-	-	-	-	-	-	-	235
	249	423	538	538	538	538	538	538	538	538	538	773
Total												
Costs												
Project investment & capital expenditures	461	-	-	-	-	-	-	-	50	-	-	-
Working capital	51	27	26	-	-	-	-	-	-	-	-	-
Operating expenditures	229	345	446	446	446	446	446	446	446	446	446	446
Interest payment of S/T borrowing	2	3	3	3	2	1	-	-	-	-	-	-
Total	743	375	475	449	449	447	446	498	476	446	446	446
Net Incremental Benefit Stream	(494)	48	63	92	92	91	92	42	62	92	92	327
FRR = 13%												

FINANCIAL RATE OF RETURN FOR VEGETABLE PRESERVATION SUBPROJECT
(in million Won)

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Revenues												
Sales revenue	118	209	209	277	277	277	277	277	277	277	277	277
Residual value of fixed assets												92
Total	118	209	209	277	277	277	277	277	277	277	277	329
Costs												
Project investment & capital expenditures	179	-	-	-	-	19	-	-	-	29	-	-
Working capital	8	15	14	11	19	-	-	-	-	-	-	-
Operating expenditures	162	174	226	235	235	235	235	235	235	235	235	235
Interest payment of S/T borrowing	1	2	2	2	1	-	-	-	-	-	-	-
Total	251	191	242	248	245	235	235	235	235	235	235	235
Net Incremental Benefit Stream	(133)	18	27	29	32	32	42	42	42	42	42	94
FRR = 15.2%												

* OEDD1 *

- 35 -

ATTACHMENT 1

UBW6398

88.03.21.0211 6398 88.03.21.0211

197688 WORLDBKNUT

AAFMC K23297

AGRICULTURE, INFRASTRUCTURE AND
HUMAN RESOURCES DIVISION
OPERATIONS EVALUATION DEPARTMENT
THE WORLD BANK.

FOR MR. GRAHAM DONALDSON, CHIEF
RE PROJECT COMPLETION REPORT ON KOREA SECOND AGRICULTURAL
PRODUCTS PROCESSING PROJECT(LOAN 1851-KO) DATED
JANUARY 28, 1988.

WE WOULD LIKE TO ADVISE YOU THAT WE GENERALLY AGREE WITH
YOUR COMMENTS ON THE MAIN ISSUES ARISEN DURING IMPLEMENTATION
OF LOAN 1851-KO. THREE WORDS AND RICE MILLING IN LINES
26 AND 27 ON PAGE 6 OF THE BANK'S OVERVIEW, WHICH WE PRESUME
WOULD BE TYPOGRAPHICAL ERRORS, SHOULD BE DELETED.

Done
WE WISH TO ADD THAT AFDC WAS REBORN TO THE AGRICULTURAL AND
FISHERY MARKETING CORPORATION(AFMC) AS OF JANUARY 1, 1987
TO WIDEN ITS FUNCTIONS IN PROMOTING THE DEVELOPMENT OF
AGROPROCESSING AND AGRICULTURAL MARKETING INDUSTRY IN KOREA.
THE INVALUABLE ASSISTANCE PROVIDED TO AFMC FOR THE PRO
JECT

BY THE BANK IS GRATEFULLY ACKNOULEDBED.

BEST REGARDS, AHN KYO-DUCK, PRESIDENT
THE AGRICULTURAL AND FISHERY MARKETING CORPORATION,
SEOUL, KOREA.
197688 WORLDBKNUT

=03210723

NNNN

